An IBM Wife Writes
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COMPUTERWORLD
The Newsweekly for the Computer Community

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Fluidics Explained
See Page 7

Low Cost Emphasized

Direct-Access Disks Introduced For Univac 9000s

This view of the new Univac 8410 Disc File, just announced, shows the two units which form the basic system. A further six units can be added if they are needed – giving a possible capacity of 12 million bytes.

The operator takes one cartridge off its disc-drive preparatory to reversing it and replacing it on the drive. Only one side of the disc is on-line when the cartridge is in position on the drive.

NEW YORK, N.Y. – A new, low-cost, direct access storage system designed for the Univac 9000 series computers has been announced by Sperry Rand's Univac Division.

Known as the 8410 Disc File, the new system is designed to bridge the gap between punched card and direct access processing, and offers unique advantages within a wide range of data processing applications.

Suitable for field-installation on any Univac 9200/9300 system, the 8410 Disc File provides removable direct access storage of 3.2 to 12.8 million bytes, or 6.4 to 25.6 million digits in packed decimal format.

High-Speed Buffer Used

A basic 8410 system includes a master dual disc drive expandable one drive at a time to a total of eight drives. Each drive holds a reversible disc cartridge with two storage surfaces; one of which is on-line. By interchanging disc cartridges, unlimited storage is provided for applications which require serial processing.

Each disc drive can access 10,000 160-byte records plus an 8000 byte fast access track called the Fastband. All disc drives contain a fixed head for reading and writing on the Fastband and a movable arm with two heads for the remainder of the disc surface. The average time required to locate and read a record on a random basis is approximately 135 milliseconds. Arm positioning time on one disc drive can be overlapped with read, write and check operations on a second disc drive.

Fastbands can be used for program storage, index tables, or storage of frequently accessed data files. For index sequential operations, each Fastband stores the high order track keys, which in conjunction with the search logic, determines record addresses. Because no arm positioning is required in accessing the Fastband, average access and index search time is minimized and system through-put increased.

Another feature of the new disc file is a high-speed buffer permitting all disc reading, writing, checking or searching to be performed simultaneously with 9200/9300 processing and peripheral operations.

Programming support for the 9200 and 9300 Direct Access Storage Systems includes a Report Program Generator, Supervisor, System File and Disc Loader, Assembler, IOCS, Disc Sort, Utility Programs, Control Stream Operations and Library Services.

Monthly rental price for the Basic Dual Disc Subsystem is $830 per month on a one-year contract. A five-year lease is $745 per month. Purchase price is $28,065. Deliveries of the 8410 Disc File will begin in approximately 12 months.

A Univac spokesman told COMPUTERWORLD that a prime advantage of the system – so far as the user is concerned – is the low price of the minimum system. "With our 9200 and an 8410, a user can be on the air for just over $2,000 a month, much less than is needed with some competitive systems," he said.

1967 CDP Results Show More Consultants, But Fewer Operators Failed

CHICAGO, ILL. – A surprising set of facts from an analysis of the results of the January 1967 examination for the Certificate in Data Processing showed that 33% of the consultants who took the exam failed it – nearly three-fold percentage increase from the figures of the previous year. At that time 88% of the consultants passed.

Even so, consultants still headed the group and had the highest passing averages. At the opposite end of the spectrum, the machine operator category came in (percentagewise) last – but with 18% passing instead of the previous 10%.

The information was published in the CDP Newsletter, which is sent to all CDP holders, and currently forms the strongest tie between them and the DPMA who awards the Certificate. Comparatively few of the actual membership of the association have the certificate – and few of the holders are in the association!

Few Took Exam in 1967

The actual value of the figures is not clear, however, because of the nature of the 1966 and 1967 examinations. The 1966 examination was the last one in which mere experience in the field allowed candidates to enter – and as a result a record number of people did enter.

The 1966 examination had a high-proportion of re-takes - people who had taken and failed the 1965 examination. The 1967 examination, by contrast, had only a very few entrants, (646) by far the lowest number of candidates since the examination was started in 1962. Insofar as these were both rather exceptional, any conclusions which are drawn from the figures must be regarded as being tentative until such time as more data becomes available.

In particular the success of the whole Certificate in Data Processing Project appears to depend on the success of the DPMA in reversing the present downward trend in candidates for the examination. (See table) Whether or not this will happen can be expected to be known shortly when the Association announces the number of candidates for next year's examination - which is being closed out this week.

Chronological Summary of CDP Testing

Year	Candidates	Certificates Awarded
1962	1,415	937
1963	2,396	1,594
*		
1965	6,951	4,365
1966	1,005	408
1967	646	368

*No examination was held in 1964 owing to changing of the schedule from holding test in November to holding it in February.

This chart of the number of candidates taking the Certificate of Data Processing since its inception shows the growing popularity, and then the reduction in candidates.

The Kick-Off Meeting Of The 'Universal Computing Society'

by Alan Taylor

CHICAGO, ILL. – The kick-off meeting for the "Universal Computing Society" [See COMPUTERWORLD, Dec. 6] was held in an atmosphere of group confusion, undirected enthusiasm and gross money-grubbing. The group of men present at the dinner meeting were selected from all walks of data processing life, and most did seem to have some background in either data processing or employment. There were two representatives from the Urban League, about five DP managers, a financial vice president, three or four school instructors and owners of keypunching and programming schools. A number of DPMA members were there, and at least one ACM badge was showing. The thirty or so diners who had paid $8.50 for the privilege heard Bob Mann – self-appointed executive director – declare that his aim was to help the starter in the industry – the key punch operator, the student who had come out of one of the "IBM"* schools (and was finding that he could not get a job), the programmer who wanted to rise. They heard him explain that this help would include professional-level seminars, the best library in the business, as well as other things. They also heard him evade questions about the aims of the society, about mysterious "earlier" meetings, and about financial controls.

And still, at the end, many of them at all levels paid $30 cash-on-the-barrelhead to get a chance of being on the "Executive Committee" of the new society.

A scene during the Kick-Off Meeting of the Universal Computing Society.

The evening opened decorously with a grace before dinner. It started as a normal grace, and then veered into calling for blessing on the new society and in its hoped-for role as the largest computer society.

Some of the more flamboyant characters present were from schools which train people to be programmers. One instructor, who weighed well over 200 pounds, rose like an avenging prophet from his chair every half hour or so to proclaim, "I want to join a society which will fight the computer manufacturer. They have failed us!" Another instructor was demanding "What is the integral of 1/log x?" and explaining that it was polite to turn one's back on an opponent in a debate. A school owner

(continued on page 3)

*schools referred to are not, of course, run by IBM and have no connection with that corporation.

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Editorials

A Leasing Meaning

The recent announcement of GE's intention of providing company-supported leasing of their major computer lines merely emphasizes the hold which computer leasing has taken in the past year. It has, of course, always had many obvious attractions to the accountant. It is, on the surface, cheaper – and that counts for a lot. But not for everything.

Flexibility, as well as cheapness, also has its value. To be able to cancel a computer system – or to move up – or to move down, all have distinct management advantages. So does the single responsibility which comes from dealing directly with the manufacturer. In the past these have been controlling interests. Now, quite suddenly, they control no more.

The change, therefore, must mean something. We think it means that data processing managers are now more confident in their computer selections. They are able to take the risks involved – because their increasing professionalism has made their choice that much better.

That is a nice change – and a true sign of industry-wide maturity.

Computer Problems

As could have been expected by anyone who knows their proverbs, the computer area itself is one of the hardest to computerize. Although the machines are easily available our use of computers has been limited to using them to simulate our own traditional processes.

Now things appear to be changing. Now we find computers being used to help us in non-traditional ways. Scientific computers – such as the PDP series – are being used to reduce the overhead involved in operating systems. Analog computers of special design are being used to overcome the problems of batch-processing. Doubtless in the future many many more instances of intelligent partnering of computers will occur – even though they are not part of today's tradition.

It should be instructive to watch us facing the problems as well as the opportunities of computers.

A Community Asset

In our correspondence columns this week we have published a letter from Mary X. (Her name has been withheld by our decision – not at her request). She has in the past gone to battle for causes in which she believes. Her husband, and his colleagues and their worries – all these things are things in which she actively interests herself. How different is this picture of a lively, effective wife than the standard stereotype of the lazy, affected ornament.

Isn't this just the type of person you like to have with you in the computer community?

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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Letters To The Editor

IBM Sales Plan: A Wife Writes

To the Editor:

In reference to your article of November 22, 1967, on IBM Salesmen, I can cite my own experience.

My husband was an IBM Salesman for seventeen years without losing an account, a Life Member of their 100% Club and a member of the Golden Circle. Because he refused to sell unnecessary equipment to his customers he was fired by his manager.

I called Mr. Thomas J. Watson, Jr. (because I knew that others were being treated the same and I did not think it fair that the same thing should happen to them.) A week later he was rehired but under the same manager, and the same harassment. He wanted to leave but was asked to stay by New York management on two occasions. The third time he just left.

Because of his regard for the customers and their respect for him, he is successfully selling IBM equipment to IBM customers at a substantial savings; keeping companies using IBM equipment that could change to other manufacturers.

The manager was finally changed, but it took them four years to do it. It will take long and tedious effort before a fair and equitable Sales Plan will be presented to correct, not only the moral, but also the financial sacrifice that has to be made at the present time.

Congratulations for taking the initiative to help a worthy group.

Mary (last name withheld)

COMPUTERWORLD Features

To the Editor:

Please excuse the informality of this letter - the object being to convey information as quickly as practical.

We are in the business of improving the accuracy and currency of available data to our respective users. And particularly since you have chosen to become the weekly supplier of information to the computer community, I wonder if you could be of service to us in our endeavor for current information. Namely, the review of the latest books concerning information processing.

While I realize I may be requesting a seemingly impossible task, I'm sure that your inventive and resourceful minds could find a solution to this problem.

For you see - a large number of us who live beyond the metropolitan-university environment must rely heavily upon the written word for our source of the latest information. The present sources of reviews are either too late (book clubs) or too infrequent (monthly publications) for our purposes.

A word of kindness is in order also: I appreciate the effort that "Computerworld" has expended to date - I encourage you to continue and improve! Which reminds me; allow me to lend my voice to those who are in favor of continuing the stock summaries.

I thank you for any time which you may spend considering a solution to this problem.

Thomas O. Cunningham
Senior S & P Engineer
Westinghouse Aerospace Div.
Lima, Ohio

Our bookworms are close to surfacing. Ed.

Monoprogramming

An Engineer's Answer To Programming Ignorance

Last week Computerworld discussed the problem of getting efficient time-shared general-purpose computing while engineers were only providing us with equipment which had to be used exactly as the planner predicted if it was to be effective, and when programmers were quite unable to predict how future programs would use it.

We suggested that it would certainly help programmers if the engineer's did manage to solve the engineering problems - as there seemed to be no easy solution to the programming problem.

Since then Computerworld has been told of one engineer-based possible solution which is being developed by Control Data. It involves - "Monoprogramming."

Monoprogramming is based on the simplest of all approaches to the problem of improving computer efficiency. As its name implies, it is the direct opposite of multi-programming, which normally allows more than one program to be held in the central computer memory. Under monoprogramming *only one* program is held in core at a time. When it is no longer using the facilities it is pushed out into a backing store, and a new program is brought in from the backing store and re-started. Programs are pulled in and out of the backing store as necessary - *but at any one time only one program is in the central core.*

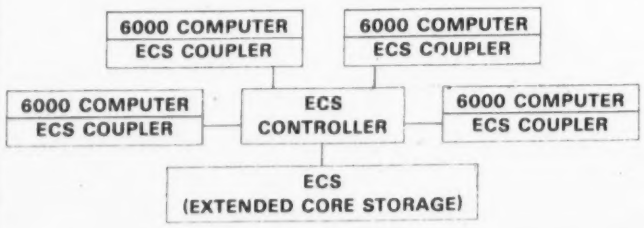
Put this way, there is nothing new about monoprogramming. This was exactly how the first attempts at improving machine efficiency worked in the past - but they turned out to be themselves inefficient. What is new about monoprogramming is that it is based on a backing store which can hold many more programs than present systems without the overhead involved getting impossibly high.

In the present instance the basic technique has been to provide a large core backing memory - large enough to hold 50 or so programs - and to provide it with an access time, and transfer rate, which keeps the overhead involved in moving the programs in and out low. This need has been handled by the engineers to Control Data's satisfaction - see below - and they have recently passed the first of these special large core systems to their software headquarters in California. Now the engineers are waiting to see how well the system performs in practice.

So is Computerworld. And when we do hear - we will pass the news along quickly. Monoprogramming MAY be the answer.

In the meantime, here are some of the technical details of the Control Data Extended Core Memory so as to help you appreciate the potential which may soon be a reality.

Look for another report in Computerworld in about three months time when the first commercial deliveries take place.



Hardware Is The Key

Technical Details Of ECS

A Control Data 6000 Series Extended Core Storage (ECS) System represents a practical and economical device to fill a gap that existed between random access control memory and the first level of rotating storage. It is available at only about one-tenth the cost of central memory core storage.

600 Bits/microsecond

The primary characteristics of an ECS System are:

15,744 488-bit words (125,952 60-bit words) per bank is minimum available size.

Available in 1-, 2-, 4-, 8-, and 16-bank configurations, up to maximum capability of 2,015,232 60-bit words.

3.2 microsecond cycle time (read-write for 488-bit word) means maximum transfer rate of ten 60-bit words per microsecond.

Transfer rate between ECS and central memory of up to 100 million characters per second.

Bounds protection and relocation capability.

The new ECS SCOPE Operating System utilizes ECS for the following:

I/O Buffering:
By maintaining a reservoir of data in ECS, the operating system permits streaming of data to and from a rotating mass storage device. This feature particularly aids applications which would otherwise be I/O bound. Also, since access time is short, small buffers can be used in central memory, releasing space for other uses.

Job Swapping:
Storing jobs in ECS maximizes activity in the central processors. ECS, unlike drums and disks, does not require complex scheduling to overcome latency time to attain performace fast enough so that jobs may be swapped to central memory, whenever the central processor is idle, as well as on demand. This feature may be adjusted to conform to installation requirements.

User Allocation:
The operating system permits direct user access to ECS so that large data arrays may be manipulated as high-speed block transfers. Contiguous space in ECS is allocated by the job loader or on user demand.

New Software From IBM

Bill-Of-Materials Now On 360/20s

WHITE PLAINS, N.Y. – A new application program package for the System 360 Model 20 will provide capabilities previously available only to users of larger models.

General purpose programs in the new Bill-of-Material Processor allow loading and maintenance of product structure records and part number master records; reorganization of the product structure and updating of part number master files, and retrieval of basic product structures and "where-used" part lists in single level, indented or summarized formats.

The programs may be run under either the disk-resident or card-resident monitor of the now available Model 20 Disk Programming System. They are written in Assembler Language using the Input/Output Control System.

The processor, which is scheduled to become available in the fourth quarter of 1968, is claimed to be readily adaptable to special user requirements and engineering change procedures.

An IBM spokesman said the difference between the Model 20 processor and the Model 30 processor is that the Model 20 can handle only part number inventory type files and bill of material files, while the Model 30 processor has the additional capability of establishing routing files and work center files.

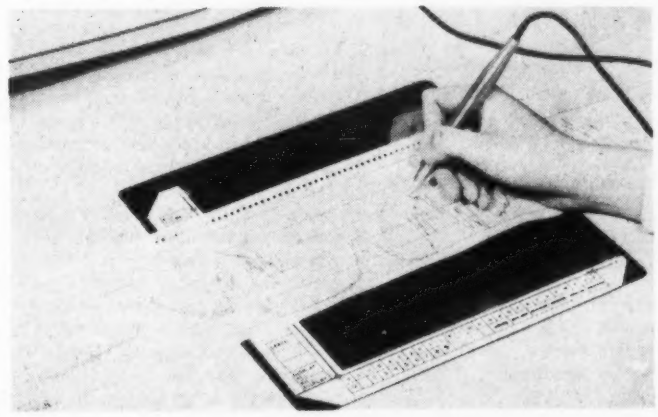
Both the Model 20 and the Model 30 processors are written in Assembly Language.

The Model 20 processor requires 16K core storage, two disk drives, a card reader, a card punch and a printer.

Quicker Graphic Input Claimed For Rand Tablet

The flow of adaptations of the Rand tablet for use with computers which has been coming out of Bolt Beranek and Newman in recent months continued last week with a system for off-line input from drawings, maps, or projected slide or file images. The data is traced in one way or another using a pen-like stylus as in the picture. It is then recorded on the magnetic tape.

The system is claimed to be several times faster than other graphic digitizing systems which are currently available.



The Grafacon 205-1

New Computer Society Kicks-Off

(continued from page 1)

seemed to be wanting to join so that he could pursue a personal vendetta against Mr. Mann rather than to help anyone. Apparently Mr. Mann had been Director of Placement (among other offices) at some school which charged its students two grand – and apparently the students were anything but pleased with "placement" services they received.

No decisions were reached during the evening, and as midnight approached the diners started separating. Urged on by Dan Doneghan, Bob Mann's associate, many signed checks and paid cash for a "lifetime membership" which lasted just as long as they were serving on some committee. Whether or not they ever got on a committee depended on the voting at a later meeting on Jan. 5. [If they did not get on the committee, then their cash was to be refunded.]

When the meeting closed the postmortem started. Rumor went round that one man had blacked his wife's eye just outside. Mrs. Doneghan said that there had been too much to drink, and Bob Mann agreed, rather absent-mindedly as he counted the takings. "The jerks," he said, "Did you notice how the men who shot their mouth off were the first to put the cash down? Jerks – that's all they are!"

And with that he left the overheated room at the Millionaire's Club and went up to the bar for more drinks.

The meeting was over.

Retroactive Leasing Is Offered On Most Of GE's Computer Lines

PHOENIX, ARIZ. – General Electric and Systems Capital Corporation (SCC) have concluded an agreement here that will make several GE computer lines available under a variety of long-term leasing arrangements.

In a joint announcement, the two companies said that under the SCC plan GE will sell GE-115s, GE-200 and GE-400 computers to SCC which will in turn arrange for long-term leasing to computer users who elect this arrangement. The new plan will be in addition to standard GE sales and lease agreements.

SCC will offer the GE computers at a range of rental prices which diminish as the length of lease increases. Four-year leases will be available at 92.5 percent of each year's standard rental cost; five-year leases at 90 percent; six-year leases at 85 percent.

In addition to the SCC plan, users can elect to purchase a system outright, buy it in installments, rent it on an annual basis under a monthly use charge, or arrange a long-term net lease with Investment Leasing Services, Inc., a wholly-owned subsidiary of SCC.

Although third-party leasing is not unique in the computer industry, at least two features of the SCC plan are significantly different, Mr. Louis Wengert, Deputy Division General Manager of GE's Systems Division said "For one thing, there is virtually no third-party interspersion between General Electric and its user customer," he declared. "We continue to fulfill our traditional role of service to our customer. In addition, the GE salesman will assist the users in adding equipment and any extensions or renewals of the SCC lease."

Donald Benscoter, president of Systems Capital, said that another unique feature of the SCC plan is its flexibility in payment rates. The plan allows a user to elect higher or lower payments at either end of his contract to accommodate his cash position, and to level out his total expense over the life of the contract.

"For example," he said, "if a user is experiencing heavy programming expense at initial installation of the system, he may want to make lower payments at the beginning of his term, and make proportionately higher payments at the end, thus enabling him to use his operating capital more effectively."

Autoanalyzer Uses Scientific System; 3,000 Analyses/Day

NEW YORK, N.Y. – A computerized automatic analyzer data reduction system to perform clinical and biomedical laboratory analyses has been developed by Realtime Systems, Inc. The system, which uses a small computer such as a PDP-8 or 1130, tied directly into a 10-channel automatic analyzer, is claimed to be the only complete data reduction system on the market.

Test results are available in minutes on printed forms, and also on punched tape if desired. A company spokesman said the system allows four lab technicians to run approximately 3,000 accurate clinical lab analyses in one work day. The spokesman said this job would normally require seven additional people if it were to be accomplished in one day.

Systems components include the computer, instrument interface, operator consoles, analog input channels, and I/O stations. It is available from Realtime on a turn-key basis, including hardware, software, start-up and installation assistance.

The Autoanalyzer system is in use at Atlas Chemical Co., Wilmington, Del., and a system was delivered to Smith, Kline, and French, Philadelphia, last week.

Brandon Reorganizes

School Widens Interests

NEW YORK – A major reorganization of the training division of Brandon Applied Systems, Inc. was announced by Dick H. Brandon, president. The reorganization of Brandon Systems Institute includes the establishment of two new positions.

Herbert B. Lassiter has been appointed Director of Curriculum Development, and Joseph A. Cook has been appointed Director of Marketing. Before their appointments, both men were senior consultants with Brandon Applied Systems, Inc.

Mr. Brandon said the Institute is broadening the scope of its data processing training activities by increasing the number of courses it offers and by extending its coverage to the midwestern United States. Most of the Institute's domestic training activities have been centered in New York City and Washington, D.C. Earlier this year, public courses were extended to Detroit and starting next March a full curriculum will be offered in Chicago.

Two additional teaching positions for the fall trimester of 1968-69 have been created by the rapidly increasing enrollment of Miami's five-year-old computer oriented Systems Analysis Dept. A challenging program eagerly accepted by industry, consulting opportunities, and competitive salaries make these positions very attractive. Contact: Mr. Lawrence Prince, Chairman, Systems Analysis Department, Miami University, Oxford, Ohio 45056. Phone (513) 529-5920.

Programmer

Blue chip company needs programmer with 2 years programming experience in Cobol for systems and programming work on 360/30. Salary to $11,000.

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Real-Time Reaches Out To Police Cars; 155 Terminals Spread Through Ohio

COLUMBUS, O. – State and local police in Ohio will use a computer based information system and statewide electronic communications network to track down criminals. The system, called LEADS (Law Enforcement Automated Data System) will be in use early next year.

Colonel Robert M. Chiaramonte, superintendent of the Ohio State Highway Patrol, said "Use of computers in this manner on a state and national level probably represents the greatest advance in police information and communication since the radio."

Typewriter-like terminals, to be installed in law enforcement agency communications centers throughout the State, will provide direct access to computers in Columbus, IBM System/360s, containing three separate files of information:

1. registration numbers and related data on the more than 5-million Ohio licensed vehicles;

2. basic operator's license information on the 6-million, or more, drivers licensed by the State of Ohio, including current records of any arrests, convictions or traffic points compiled;

3. a file of information on such things as stolen vehicles and parts, missing license plates and vehicles driven by persons with suspended, or revoked operator's licenses.

"This type of information," said Colonel Chiaramonte, "has always been available. However, the system brings it together for the first time so that it can be put to effective use."

Access to the files will be restricted to authorized law enforcement personnel who require the information to carry out their duties.

The terminals also will provide communications between law enforcement agencies within the state. Acting as a switching center, the IBM computer will enable persons using the terminals to communicate with any one, or all, of the 155 terminals in the system.

Colonel Robert M. Chiaramonte shows the disk-packs which will be the central part of the new real-time data system. This has been designed to provide really fast access to the data residing in police files in Columbus – but which the policemen have been previously unable to tap quickly enough.

"The value of having correct information available quickly can be measured in terms of human lives, increased traffic safety and dollars," said Colonel Chiaramonte.

Computer Lowers Risks

For example, he explained that a policeman will be able to find out before he approaches a vehicle if it has been involved in a serious crime such as a bank robbery, or is stolen.

To obtain the information he will radio the car's license plate number to a dispatcher in his communication centers. The dispatcher will enter the number through a terminal. Within seconds the computer will answer and the dispatcher can radio the response back to the policeman.

Thus, the policeman's chances of being unprepared when he approaches a car driven by an armed or dangerous person are greatly reduced.

Background Details

GE To Fight It Out With Bell System — Says Rader

GE is moving into full-scale production of data transmission equipment. The company's introduction of a full line of Bell-compatible digital transmission equipment was discussed by Vice President and Manager of GE's Industrial Process Control Division, Dr. Louis T. Rader at a recent press conference in New York.

Dr. Rader stated that GE will expand its line of data communications equipment with the intention of becoming a principal supplier, "a one-stop shopping center for all data communication needs in the years ahead." In conclusion he said, "We feel there is a need today for an independent supplier of a broad range of data communications equipment. We intend to fill that need with equipment to handle everything from teleprinter-speed data up to wide-band, very-high-speed data."

Although Dr. Rader said that independent telephone companies and organizations with private communications are the prime customers for the GE equipment, it was clear to listeners that GE is organizing an attack on AT&T over its "foreign" attachment policies.

GE wants to get the policies and rules governing the use of telephone attachments loosened, and to see its own equipment allowed on the lines of the Bell system.

GE unveiled eight of the new data transmission products, called the Diginet Series, in New York, November 14. (See COMPUTERWORLD, Vol. 1, No. 14, Nov. 15, 1967.)

* Where * to Write

Bolt Beranek and Newman, (mag. tape digitizing system), Data Equipment Div., 2126 S. Lyon St., Santa Ana, Calif. 92705.

Control Data Corp., (extended core storage), 8100 34th Ave. S., Minneapolis, Minn. 55440.

General Electric Co., (4-5-6 leasing), 13430 N. Black Canyon Hwy., Phoenix, Ariz. 85001.

Honig Time Sharing Associates, Inc., (FORCE-3), 116 N. Central Ave., Hartsdale, N.Y.

IBM, (Model 20 processor), Data Processing Div., 112 E. Post Rd., White Plains, N.Y. 10601.

Real Time Systems, Inc., (Analyzer) 866 Third Ave., New York, N.Y. 10622.

Univac Div., Sperry Rand Corp., (8410 Disc File), P.O. Box 8100, Philadelphia, Pa. 19101.

Spectra 70/45 Drafted For LITE

Kawasaki Steel Corp., one of Japan's largest steel producing firms, has ordered two Univac 494 Real-Time computer systems to supplement a 494 system installed earlier this year at the company's head office in Kobe. The two new systems, scheduled for delivery early next year, will be installed at branch offices and tied-in to system in Kobe.

The *Swedish Postal Bank* has ordered optical character recogniation and high-speed sorting equipment valued at about $1.4 million from AB Recognition Equipment Industri, Swedish subsidiary of Recognition Equipment Inc.

Amway Corp., Ada, Mich., has installed a Burroughs B300 Electronic Data Processing System valued at $350,000.

Walter Drake & Sons, Colorado Springs mail order firm, has ordered a Univac 9300 computer for handling orders. The computer is scheduled for delivery next June.

Delco's Inc. has installed an RCA Spectra 70/45 in Denver, Colo., to be used by the U.S. Air Force for high-speed search and retrieval of complex legal references. Called "Project LITE" (Legal Intelligence Through Electronics), it will eventually service all government agencies using computer communications. Delcos is a subsidiary of Douglas McDonnell Aircraft Co.

American Can Co. will install an RCA Spectra 70/45 at its data processing center in Metuchen, N.J.

Orders and Installations

EDPeople

Finley, COBOL Pioneer, Joins Time Share

Robert H. Glaser, Vice President of Computer Usage Development Corp. has been named President of *Computer Usage Facilities Management Corp.*

Charles H. Hiser has been named director of program development of the Control Data Institutes Division of *Control Data Corp.* Mr. Hiser recently retired from the Army with the rank of Colonel.

Hiser

Robert L. Gault has joined *Computer Sciences Corp.* as manager of plans and programs for Northwest Operations.

Nicholas E. Magnis, Jr. and **Barry Pickell** were elected vice presidents of *Arthur S. Kranzley and Co.*

Lawrence H. Guthrie has been appointed manager of proposal development for the Computer Sciences Division of *Computer Sciences Corp.*

Richard H. Leeman has been appointed sales manager for Weston-Lexington Division of *Weston Instruments, Inc.*

Noel M. Richardson has joined the *Ferroxcube Corp.* Memory Systems Division as a design engineer.

Anthony J. Spanedda has been appointed assistant comptroller of *ITT Data Services.*

Michael Calandra has been appointed manager of plans and programs for the New York operations of *Computer Sciences Corp.* In the Computer Sciences Division of CSC, **William E. Peugh** has been named national manager of NASA accounts.

Aldo Falossi has been appointed field sales manager at *Non-Linear Systems, Inc.,* Del Mar, Calif.

William E. Meyer has been appointed Director of Public Relations for *Communitype Corp.*

William Finley has been named vice president of Time Share Corp. Mr. Finley comes to Time Share from Honeywell EDP, where he held the position of Associate Director, Programming & Systems Division. Mr. Finley was a charter member of Dr. G. Hopper's group during the development of the language for business compilers, and later was responsible for the Honeywell 800 COBOL system.

Finley

Robert Umbagh has been appointed Director of Personnel for *Computer Usage Development Corp.*

Robert F. Welch has been named Manager, Technical Information Center, in *Sperry Rand Corp.'s* Univac Data Processing Division. A member of the Univac marketing organization since 1965, Mr. Welch has more than eight years of experience in all phases of data processing.

Dr. Hillyer G. Norment and **Iordan Ellis** have been appointed to the senior staff of *Arcon Corp.* Also at Arcon, **Stanley Woolf** has been named a senior scientist.

Norment

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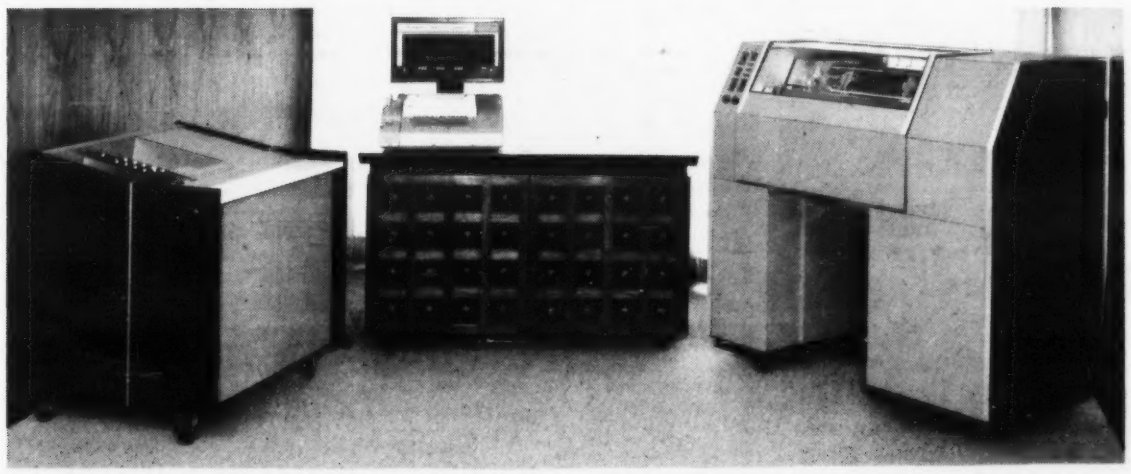

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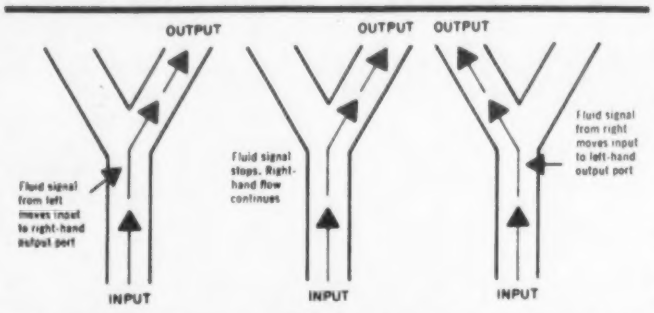
Computers Do Not Have To Be Electronic - Here Is How One Of The Alternatives Works - FLUIDICS

Fluidics – the field of fluid devices or systems performing sensing, logic amplification and control functions using no-moving-part devices – is the subject of a bulletin recently published by General Electric. The bulletin is in the nature of a primer, and contains good diagrams and illustrations, a glossary of the terminology of fluidics and clear explanations of the operating principles and applications of fluidics.

Using air or gas as a power source, fluidic components can sense positions, provide operating commands, perform logic interlocking and control the valving of a machine's control system.

Used as a part of or in conjunction with electrical control systems, fluid components have the advantages of no moving parts, low maintenance and high reliability. They generate no electrical noise and have a high tolerance to vibration, temperature and environmental changes.



Fluidic computers often use air rather than electricity to provide logical control. The basic method of changing a "one" pulse to a "zero" is shown here. A small control flow from the left is used to direct the main flow first into the right hand arm – and then into the left hand arm when the flow comes from the right hand side.

The operating principle of fluidic elements is known as jet interaction or wall attachment phenomenon. A jet of fluid under pressure and directed toward the wall of a channel in an element, attaches itself to the wall.

The fluid will continue to flow in this direction until acted upon by a signal change. The jet can shift to another wall by means of a jet of fluid which directs the main stream of fluid toward another channel wall.

Variation on where the fluid stream output goes in response to signal or no-signal conditions is determined by the construction of the fluidic element.

Applications

Fluidics should not be considered as a device-for-device substitution of electrical control components. The booklet points out that fluidics is the best way to do some jobs, but should not even be considered for others. Applications should be considered on the basis of the control function to be performed.

The booklet describes in detail six CR180 fluidic components: flip-flop element, or/not, digital amplifier, proportional amplifier, half-adder and rectifier.

Copies of the 12-page bulletin may be obtained from General Electric Co., Schenectady, N.Y. 12305.

GE's General Purpose Control Department manufactures and markets a line of fluidic components.

Keydata Continues Southward Expansion

CAMBRIDGE, MASS. – Keydata Corporation has opened a Connecticut sales office in Hartford and appointed Ralph B. Wagner as Connecticut Area Manager. The Cambridge, Mass.-based company, which furnishes on-line data processing for business accounting and reporting procedures, is extending its services throughout New England and to Metropolitan New York.

Keydata's subscribers in Connecticut include manufacturers of furniture and hardware.

Another Free Publication

Computer Usage Company, which produces the quarterly **Computer Usage**, has announced the publication of **Computers and Space**, an addition to the quarterly. It is free, and available from Jack Clarke, Manager of Communications Dept., Computer Usage Co., 344 Main St., Mt. Kisco, N.Y. 10549.

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Bank To Go Further

A Year Of Communications

PHILADELPHIA, PA. – The Philadelphia National Bank announced last week that it has successfully completed one year of using data communications equipment. A magnetic tape communications terminal from Mohawk Data Sciences and Bell System Data-Phones are used in the high speed system which was installed in November, 1966.

The data communications equipment, operating with a bank in California, is used in the daily transfer of lock box remittance information over ordinary telephone circuits. The result is a magnetic tape in a format suitable for immediate computer processing.

Philadelphia National installed its first Mohawk data recorder last April. The data recorder replaces card punch and verifying machines as a means of translating source documents into magnetic tape. The bank was instrumental in the development of innovations to the basic system, including universal check digit verification.

Future plans call for increased emphasis and expansion of data transmission concepts in remittance banking services. The use of data transmission enables the bank to provide its customers with direct input data to their computer systems.

The lock-box service encompasses the direct receipt and processing of remittance payments, transmission of accounts receivable data and collection of checks. PNB currently processes more than 14 million lock-box items annually, totalling over $2 billion. Participating companies get improved cash flow, reduced processing costs and accelerated credit information.

Now in the process of implementation is a telecommunications hook-up between the bank's 135 mile distant CompuCenter and its Philadelphia Center. It will be the predecessor of a more complex high speed data communications network between the two.

Bet They Still Have To Pay For It!

The boys at Digital were so proud about their early delivery of the first PDP-10 that they wrapped it up like a Christmas gift. Company officials said that the wrapping did not mean anything more than 'Best Wishes.'

15-Terminal Conversational Fortran For OS/360 Offered By Honig Assoc.

HARTSDALE, N.Y. – A proprietary conversation environment Fortran system is being prepared by Honig Time Sharing Associates, Inc. The package, called FORCE-3, will support between 10 and 15 terminals on a 360/50 and up, as well as allowing standard batch processing. It will operate as a partition under OS/360.

The package is intermediate between the RAX (Remote Access Computing System) and the large scale Model 67 Time-sharing system.

Designed For Closed-Shop

The team leaders are Thomas O'Brien, lately of the University of Michigan and Al Irvine, who has been working with System Development Corporation on time-sharing implementations. Mr. Irvine told COMPUTERWORLD that the package was particularly useful when a closed shop operation wanted to offer its engineering department the advantages of program compilation and debugging from consoles. The central feature of the system is that the user's programs are kept in core while he is in contact with the system – thus avoiding some of the high overhead traditionally associated with time-sharing operations.

"We have made it a special purpose package," he said. "We are not trying to be all things to all people. That is why we expect to give efficient operation to the users."

FORCE-3 requires a minimum 512K core storage, 100 to 150K bytes of memory for package residence, 2702 support of terminals and OS/360 Option 2 with the terminal system in the highest partition.

The package will provide a command language which is an extension of Basic and a conversational Fortran which is the intersection of G and H level Fortrans.

The system also provides:

– for communications from foreground to background files and vice-versa,

– accounting information in a file which can be processed by the installation,

– support for 2741 and 1050, and additional support items can be negotiated,

– saving compiled code to be used again, and,

– fast, efficient line file system which can store any sequential files.

There will be no direct communications between standard OS/360 and the foreground. Communication will be possible by copying files from the foreground file system into standard OS data sets.

Files will be stored away on the basis of file name and user ID so that there will always be protection between users. In addition, files can be password protected, and the user will be able to change the password at his discretion.

The system is currently being implemented and will be operational during the second quarter of 1968. The company expects to demonstrate FORCE-3 at the Spring Joint Computer Conference in Atlantic City, N.J.

$ $ FINANCIAL MATTERS $ $

NORTH SPRINGFIELD, VT. – Vermont Research Corp. announced a modest increase in net sales – $1,680,141 in 1967, compared with $1,639,621 in 1966 – and a 4.4% net income on sales, compared with a 10% net income figure for the previous year. A company spokesman attributed the slower growth to the high cost of new product development and product line standardization, and to the higher costs of selling first models of improved products to a number of customers as compared to selling repeat items in large quantities to a few customers.

At September 30, shareholders' equity per share was $13.12, compared with $12.29 at the end of fiscal 1966. Shareholders received a $.25 dividend per hare in 1967, compared with $.50 in the two prior years.

FORT LAUDERDALE, FLORIDA – *Systems Engineering Laboratories, Inc.*, announces receipt of a $50,000 computer contract from Ampex Corporation, Redwood City, California. The SEL 810A computers will be used by Ampex on a contract from Bell Telephone Laboratories for the development of a videotape system designed to store, retrieve, and present maintenance information and procedures. The system, being developed for the U.S. Army, will provide high-speed access to a large file of maintenance data stored on video tape.

WESTWOOD, MASS. – *Epsco, Inc.* reported earnings of $102,564 ($.13 per share) for the 39 weeks ending September 30 on sales of $5,565,181. This compares with a loss of $558,138 for the same period in 1966 on sales of $3,148,355. The company announced that backlog on September 30 was $4 million, an increase of 80% over the 1966 level.

The company's recent growth and forecasted continuing growth have been financed through the recent sale for cash of Monitor Systems, its wholly owned subsidiary, according to company president Samuel J. Davy.

NEW YORK, N.Y. – Management of the Bunker-Ramo Corp. stated that it knew of no previously undisclosed corporate developments to account for the activity in the company's shares. The company had previously announced earnings for the first nine months of 1967 of $1,680,000 as compared with a loss of $673,000 for the similar period in 1966. The company expects that earnings for the fourth quarter will be about the same as the third quarter and that total earnings for the year will be between $2,500,000 and $3,000,000. No provision for income taxes is made due to losses incurred in prior years.

ANAHEIM, CALIF. – *California Computer Products (CalComp) Inc.*, reported earnings of $220,217 on total revenue of $3,056,894 for the first quarter of fiscal 1967, ended October 1, 1967. This compares with net earnings of $217,652 on revenue of $2,086,487 for the like period a year ago. On a share basis, earnings amounted to 20.1 cents per share on 1,096,815 average shares outstanding, compared with 25.9 cents per share on 838,851 average shares outstanding last year.

How They Moved Last Week

Week Ending December 8, 1967

	1967 High	1967 Low	Week High	Week Low	Last	Week Net Change	Week %Change
NEW YORK STOCK EXCHANGE							
Addressograph-Multigraph	75 1/2	46 7/8	75 1/2	70 1/2	73	+ 3 3/8	+ 5.14
American R&D	51 3/4	32 1/4	49 1/8	47 1/4	48	+ 3/4	+ 0.44
Ampex Corp.	40 3/4	22 3/4	37 7/8	35 1/8	37 1/2	+ 2	+ 5.63
Burroughs	174 1/2	80 7/8	173	162 1/2	165 1/8	- 6 1/4	- 3.65
Collins Radio	114 7/8	53	95 7/8	92 1/4	93 1/2	- 1 3/4	- 1.84
Control Data	165 5/8	33 1/2	165 5/8	157 1/8	158 1/2	- 2 3/4	- 1.71
Electronic Associates	30 1/4	16 3/4	23 3/8	20 7/8	21 3/4	- 1/4	- 1.14
General Electric	115 7/8	82 1/2	104 3/4	100	100 3/8	- 2 3/4	- 2.65
Honeywell	117 7/8	63 1/2	117 7/8	105 5/8	114 3/8	+ 8 1/4	+ 7.77
IBM	648	362 1/2	648	620	644 1/2	+28 1/2	+ 4.13
Litton	120 3/8	79 1/2	111 5/8	107	109 1/2	+ 1 5/8	+ 1.51
Nat Cash Register	136 3/8	67 1/8	136 3/8	131 1/4	134 1/2	+ 1 1/8	+ 0.84
RCA	65 1/2	42 5/8	57 7/8	55 3/8	55 3/4	- 1/4	- 0.45
Raytheon	117	49	117	111 1/2	113 3/4	- 1 1/4	- 1.09
Sanders	77 1/4	37 5/8	77 1/4	66 3/8	72 3/4	+ 6 5/8	+10.02
Scientific Data	151 5/8	70 3/8	151 5/8	142 1/2	143	- 1	- 0.69
SCM	82 1/4	43 1/2	61 3/4	53 1/4	58 3/8	+ 6 1/8	+11.72
Sperry Rand	86 1/2	76	77	76	76	- 1	- 1.68
NYSE COMPUTER STOCK AVERAGE						+ 2.28	+ 1.79
AMERICAN STOCK EXCHANGE							
Audio Devices, Inc.	30 3/8	20	27 7/8	20 7/8	22 1/4	+ 1 1/2	+ 2.63
Automatic Data Processing	62 5/8	41 1/2	62 5/8	57 1/2	59	+ 2	+10.19
CalComp	99 1/8	60 1/4	76	68	71 1/4	- 4 3/8	- 5.79
Computer Applications	45 3/8	16	45 3/8	40 1/4	41 3/4	- 1/8	- 0.30
Computer Sciences	58	18	58	49 7/8	53 1/2	+ 4 1/2	+ 9.16
Digital Equipment Corp.	146 1/4	29 3/8	146 1/4	139 1/4	141 3/4	+ 2	+ 1.43
GC Computer Corp.	41	23 1/4	30 1/4	28 3/8	29 3/8	+ 1	+ 3.53
Leasco	114 7/8	33 5/8	114 7/8	100 1/2	114 3/4	+15	+15.04
Levin-Townsend Computer Corp.	57 1/2	10 7/8	57 1/2	45 1/2	57 1/2	+ 8 1/8	+16.46
Milgo Electronics	15 5/8	5 1/2	12 3/4	11 1/8	11 3/8	- 3/8	- 3.19
Mohawk Data Sciences	196	153 5/8	196	181 1/2	186 5/8	+ 4 1/8	+ 2.26
Planning Research	40 3/8	27 5/8	40 3/8	37	39 3/4	+ 3 1/4	+ 8.49
Potter Instrument	37 3/8	12 3/8	35 3/4	32 1/4	33 1/2	+ 1 5/8	+ 5.10
Randolph Computer Corp.	45 3/4	32 1/4	45 3/4	42 1/4	42 1/2	. . . .	. . .
AMEX COMPUTER STOCK AVERAGE						+ 2.73	+ 4.36

OVER-THE-COUNTER	1967 High Bid	1967 Low Bid	Friday Bid	Friday Asked	Last Friday Bid	Week Net Change Bid	Week % Change Bid
Applied Data Research	30	3 1/8	29	31	28	+ 1	+ 3.57
Bolt, Beranek & Newman, Inc.	30	8 1/4	22 1/2	23 1/2	22 3/4	- 1/2	- 2.20
Computer Usage	64	20 1/4	62	65	55	+ 7	+12.73
Cyber-Tronics	17 1/2	4 3/4	13 7/8	14 3/8	10 1/8	+ 3 3/4	+37.04
Data Products	23 3/8	2 1/2	21 7/8	22 1/4	22 1/8	- 1/4	- 1.13
Digitronics	19 1/4	6	18 1/2	19	16 3/4	+ 3 3/4	+25.42
DPA, Inc.	16 1/4	4 1/4	9	9 1/2	9	. . . .	. . .
Electronic Memories	56 1/2	12 3/4	50 1/4	51	48	+ 2 1/4	+ 4.69
Fabri-Tek	15 3/4	6	11 1/4	11 3/4	11 3/4	- 1/2	- 4.26
LMC Data, Inc.	13 5/8	7 3/8	12 1/4	12 3/4	10 1/2	+ 1 3/4	+16.67
Management Assistance	24 3/8	10 1/8	12 1/8	12 3/8	11 1/2	+ 5/8	+ 5.43
Memorex	226	63	202	205	189	+13	+ 6.88
Optical Scanning Corp.	92 1/2	25 3/4	92	94	77 1/2	+14 1/2	+18.71
Recognition Equipment Corp.	178	48 1/2	166	171	160	+ 6	+ 3.75
Systems Engineering Labs	63	8 7/8	63	64	56	+ 7	+12.50
University Computing Co.	198	65	198	202	179	+19	+10.61

Management - Biggest Problem For DP Managers!

Personal Page

By Everett D. Parker
Personal Page Editor

The larger an organization becomes, the more critical are its management problems. The Army is concerned about officer training the more it fills its enlisted ranks; major corporations show great concern over management and junior executive development as the company's business expands and diversifies. It is predicted that *the computer industry will require at least 200,000 programmers by 1970.* Where will it acquire the large numbers needed at the management levels to direct and lead a group of this size? Where are the middle managers for the industry going to come from? Who is planning ahead in order to avert a serious management gap? When one forecasts a work force of 200,000, what kind of management and managers will be needed? We may get a glimpse of an answer by *a look at today's D.P. Manager* and his problems.

Management Training

The Data Processing Manager's biggest problem is being a manager. Most, though not all, D.P. Managers have no special management training. Many managers, as many professionals in data processing, started off in one direction in life only later to change it. This is not to imply that D.P. Managers are unstable, but it may very well indicate that many managers are sensitive men, alert to the needs of the industry, and to the problems of those who serve it. There is probably no man more keenly aware of his lack of managerial skills than a capable systems analyst who is offered a solid management position. *Many technical men enter management jobs abruptly and find they are ill-prepared or not prepared at all for its demands.*

Technical-Type

Who gets to be the manager? In the world of computers, because of its youthfulness, most of its *managers are taken from the technical ranks;* that is, from among the most proficient and possibly most experienced programmers and systems analysts. The man with less technical skill and more management awareness or aptitude is frequently rejected because of the technical priority required by the problem at hand. Hiring executives feel they do not need another "management-type" to run their data center but a "technical-type"; a man who can get the job done. Management and personnel development have to wait. *D.P. Managers do not have time to develop management skills.* Many crimes are committed in the name of expediency and this is one crime the industry is paying for and will continue to pay for.

Do not misunderstand. I am not saying that a technically-oriented individual is unable to manage a computing center or a data service. But I am saying that because of the pressing need to get the machine "on the air", companies are apt to hire men more competent in technical than management skills. Therefore, both the company and the applicants for D.P. Management positions must live with an imperfect situation. Because of the prevailing employment market, most D.P. Managers are skilled in data processing and only poorly, or at best, moderately skilled in management.

Common Sense

If it is generally acknowledged that D.P. Managers do not have good management backgrounds, what is being done to help them become good managers, or, for that matter, just managers? There is practically no formal training for a young (or old) data processing manager. And if we go one step further we may find that there is generally no informal training either.

The most effective training tool available is the manager's own common sense. A manager, pressed by urgent and demanding needs, does not have the luxury to attend management courses or seminars, and his free time for reading and reflection is cut to a minimum by the excessive demands of his profession and position. This leaves a single, but useful, avenue for the Manager – common sense.

A manager must be able to use his common sense in an uncommon way. He must learn by doing. Today's data processing managers are forced to invent the wheel, discover fire and create spoken language while trying to run a highly complex and demanding business operation. The pressures of the computer field are such as to the natural outgrowth of a decision-making manager. Once the manager decides something, he must communicate it to his subordinates in a timely way. *Control of the business operation through people is the major requirement of a manager.* A manager must hire and fire personnel. To know how to hire good employees and to fire poor ones is a management skill which few come by naturally.

A manager should accomplish his business objectives through people. The truly successful manager may spend up to seventy percent of his business hours handling personnel problems. Where to find professionals, how to develop a high level of morale, what to do about incompetence and lack of skill among the staff, how to handle customer relation difficulties brought about by subordinates – these are management problems which need the full-time devotion of a manager. Our computer world does make excessive demands on a manager's personal and professional strengths. *A manager is required to retain his technical skills as sources of critical analysis; yet, he must use all his human resources to solve management problems.*

Goal

What should a manager be trained to do? Manage! He must *manage people as well as the business function.* The manager's primary goal is that of the company – large or small – to make a profit. The manager must realize this profit by successfully managing expenses within the limits of an established budget. For the first time, a profit and loss statement becomes a document of personal significance. Establishing policies and operating procedures takes up already scarce time. Most D.P. Managers can barely give as much as twenty percent of their time to personnel problems. *The urgent and explosive demands of the computer industry keep the manager absorbed in activities he should delegate to others.*

Time

Only time will tell. Eventually the skillful and successful D.P. Managers will stand out – some already have – and by their example teach all of us the techniques and abilities needed to succeed.

Data Processing management is wide-open – wide-open for imagination, resourcefulness and enthusiasm. Perhaps, after all is said and done, management is like tact, it can't be taught. You either have it or you don't. Do you?

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